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ABSTRACT

Key issues and areas related to the articulation process in Maricopa County are identified and discussed. First, articulation is defined as the coordination of programs so that students can progress without duplication of time, effort, or expense to themselves or taxpayers. The following sections define and discuss: (1) contracting--the purchase of education and training that would otherwise not be available; (2) course credit--the granting of college credit for mastery of the competencies equivalent to a college course; (3) occupational credit acceptance--the granting of college credit for having a valid occupational credential; (4) resource coordination--the sharing of faculty, facilities, and equipment; (5) joint program development--in which high school and college administrators cooperatively develop an occupational program; (6) regionalization--the coordination of all public occupational education resources within a geographic area; (7) the Able and Ambitious Program--which makes it possible for young people to enroll in courses at any Maricopa Community College and earn regular college credit while still in high school; and (8) barriers to articulation including turfmanship, incompatible curricula, scheduling, variant teacher certification requirements, funding problems, restrictions on the joint use of supplies, and transportation and maintenance problems. Appendices include high school-college articulation projects currently in progress. (HB)

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Articulation: the Coordination of Occupational Education in Maricopa County, Arizona

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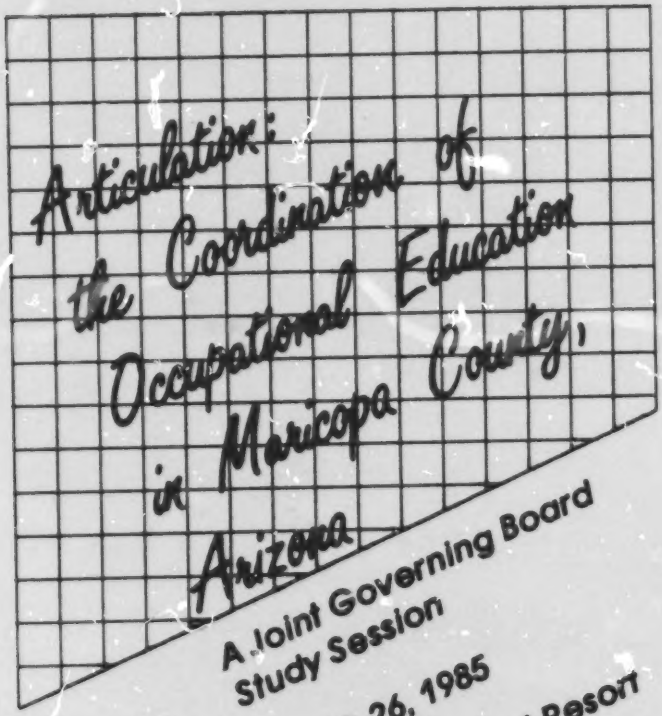

A Joint Governing Board Study Session

March 26, 1985

Ramada Airport Resort
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Acknowledgements

It is very seldom as many persons are involved in any project as have helped to write this monograph.

The fact that the Maricopa Community College District, and vocational education administrators from surrounding secondary school districts, were willing and able to focus this much time and professional talent on this project is a very strong statement about their attitude towards articulation.

The list of contributors to this monograph, and to the presentation for which it was developed, reads like Who's Who in Arizona Vocational Education.

In early January 1985, **Dr. Alfredo G. de los Santos Jr.,** Vice Chancellor for Educational Development, Maricopa Community Colleges, requested a study session for members of the Maricopa Community Colleges Governing Board, and members of the seventeen high school districts that surround the Maricopa Community College District, to present the concept of high school — college articulation. Thus was this monograph conceived.

The first step was a January 16th meeting of the following persons to define terms, to outline this monograph, and to plan the study session.

John Fry, Articulation Specialist, Scottsdale Community College
Stanley Grossman, Articulation Specialist, Glendale Community College
Moses Hernandez, Articulation Specialist, Mesa Community College
Carol Le Blanc, Statewide Coordinator, Occupational Planning

Next, each Maricopa Community College Occupational Dean was asked to work with one or more of his secondary school counterparts to write one segment of the study session presentation and monograph. Each occupational dean, his counterpart(s), and the section of this monograph which he developed, are as follows:

Dr. Fred W. Gaudet, Jr., Associate Dean of Instruction, Maricopa Technical Community College — **Dr. Kathryn Back,** Principal, Phoenix Union High School District Area Vocational Center — **Occupational Credential Acceptance**

Dr. John E. Messer, Associate Dean of Instruction, Scottsdale Community College — **Carol Erickson,** Coordinator, Vocational and Technical Education, Scottsdale Public Schools — **Course Credit**

Phillip D. Randolph, Dean of Occupational and Cooperative Education, Glendale Community College — **Owen Layton,** Administrator, Career and Vocational Education, Deer Valley Unified School District — **Dan Mangelsdorf,** Administrator, Career and Vocational Education, Peoria Unified District — **Resource Coordination**

Dr. Kenneth C. Roberts, Associate Dean of Instruction, South Mountain Community College — **Dr. Beverly Kirk,** Department Chair, Business Education, South Mountain High School — **Able and Ambitious**

Louis Salebra, Director, Maricopa Skill Center — **Jean Paisley,** Director of Vocational Education, Tempe Union High School District — **Contracting**

Kenneth M. Schultz, Dean of Occupational Education, Mesa Community College — **Dr. Robert M. Jones,** Director, Vocational Education, Mesa Public Schools — **Regionalization**

Harry Vesely, Associate Dean of Instruction, Phoenix College —**George Dunn,** Vocational Director, Phoenix Union High School District — **Dr. Kathryn Back,** Principal, Phoenix Union High School District Area Vocational Center — **Joint Program Development**

The section on **Barriers** is taken from a report **Carol Le Blanc** wrote when she was serving as Coordinator of the Barriers Subcommittee to the County-Wide Committee on High School — College Articulation.

Most of all, **Bertha Landrum,** District Director, Occupational Education, Maricopa Community Colleges, deserves recognition. It was she who gave overall direction to the total effort and who gathered together the resources which made preparation of this monograph, and the joint governing board presentation on articulation, possible.

Respectfully,

Dr. John Bradley, Coordinator
High School Articulation
Maricopa Community Colleges

Perspective

Articulation is . . .

> **the coordination of programs so that students can progress without duplication of time, effort, or expense to themselves or taxpayers.**

Articulation benefits everyone.

Students save time and money when not forced to repeat previously learned skills. Taxpayers benefit when buildings, equipment and staff are used to full advantage. High schools gain the ability to offer college level courses and colleges receive better qualified applicants.

Articulation takes many forms. **Horizontal Articulation** occurs when **students move from one campus, or program, to another of the same type.** For example, high school students from Peoria Unified District study electronics at Deer Valley Vocational Technical Center.

Vertical Articulation occurs when **students are helped to move up to the next level.** Students who learn basic electronics at Deer Valley Vocational Technical Center receive college credit for the electronics skills mastered during high school, after enrollment in the electronics program at Phoenix College.

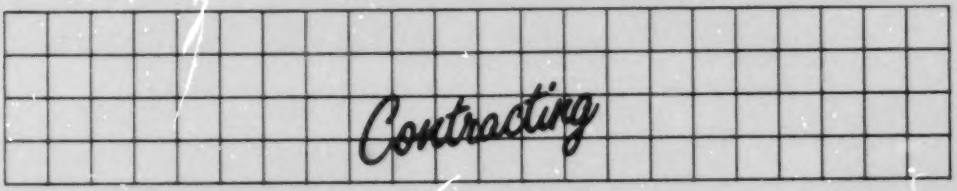
Reverse Articulation also occurs **sometimes students** enrolled in an institution normally considered to be at an advanced level, **return to an institution of education they usually would be expected to have graduated from earlier.** For example, Scottsdale Community College TV Production students practice their skills in the television studio at Scottsdale Vocational Technical Career Center.

Whatever form articulation takes, the same principles prevail. There is always a **Sending Institution** and a **Receiving Institution,** and **cooperation** between them **is what makes articulation occur.**

The people most able to facilitate articulation are high school and college administrators and teachers. The occupational dean on each Maricopa Community College campus has been encouraged to work with his counterparts from the high schools that send students to his programs.

The results have been impressive! As illustrated in Appendix A, **seventy-two articulation projects are in progress and the list grows weekly.** More than one-hundred more will be in effect by the end of the year. **Each articulation agreement is based on the unique opportunities that exist in a given community.**

Each articulation agreement is different because **the goal is mutually beneficial articulation whether it be horizontal, vertical, or reverse,** and there are a myriad of ways this goal can be attained. The articulation agreements have been grouped into six categories and the following labels assigned: Contracting, Course Credit, Occupational Credential Acceptance, Resource Coordination, Joint Program Development, and Regionalization.



Contracting is . . .

> **the purchase of education and training that would otherwise not be available.**

One example of this type articulation is the agreement that exists between the Maricopa Skill Center and Tempe Union High School District.

Tempe Union High School District contracts with the Maricopa Skill Center to provide vocational training for students from Marcos de Niza High School and Tempe High School. The goal is to provide high school students with skill training in programs that are not otherwise offered by high schools in the Tempe Union District. For example, Marcos de Niza students are currently learning the following jobs at the Maricopa Skill Center: Electronics Fabricator, Machinist, Meat Cutter, and Welder.

Contracting makes it possible for the Tempe Union High School District to accommodate student interests that otherwise could not be addressed. It would not be cost effective for Tempe Union High School District to offer the programs named for the small number of Tempe Union High School District students who would enroll. Contracting, to accommodate student interests, encourages dropout-prone students to stay in school. Students are more likely to remain in school when they can obtain training that is of interest to them.

Contracting with the Tempe Union High School District is beneficial to the Maricopa Skill Center. The additional students enrolled in the Electronic Fabrication, Machine Trades, Meat Cutting, and Welding Programs help the Skill Center operate at full capacity and the contract fees paid to the Maricopa Skill Center contribute to the operating budget.

Tempe Union High School students attend the Maricopa Skill Center for half-a-day and their home school for the other half-a-day to complete the balance of their graduation requirements. Students are being bussed from Marcos de Niza and Tempe High School, to the Maricopa Skill Center, by the Tempe Union High School District.

Course Credit

Course Credit is. . .

the granting of college credit for mastery of the competencies equivalent to a college course.

Some of the articulation agreements between Scottsdale Community College and Scottsdale Vocational Technical Career Center are based on the concept of Course Credit.

Scottsdale Public School graduates, who have mastered competencies equivalent to the beginning courses of a Scottsdale Community College program, skip the equivalent college courses and enroll directly into advanced courses, when they continue their education at Scottsdale Community College.

For example, a Scottsdale Public Schools graduate, who completed one year of Electronics at Scottsdale Vocational Technical Career Center, is exempted from the beginning courses (EL 120 DC & AC Circuits and EL 184 Digital Concepts) when he or she begins the Electronics Microprocessor Technology Program at Scottsdale Community College.

Upon admission to the Electronics Microprocessor Technology Program, a Scottsdale Public School graduate with a grade of "B" or better in Electronics receives seven hours of college credit which then applies toward graduation from Scottsdale Community College.

In other words, Scottsdale Public School graduates, who have completed the Electronics Program at Scottsdale Vocational Technical Career Center, graduate sooner from the Scottsdale Community College Electronics Microprocessor Program than college students who did not receive benefit of equivalent electronics training during high school.

Occupational Credential Acceptance

A third example of articulation is illustrated by an agreement which exists between Maricopa Technical Community College and the Phoenix Union High School District Area Vocational Center. **Occupational Credential Acceptance** is. . .

> **the granting of college credit for having a valid occupational credential.**

The goal of Occupational Credential Acceptance is similar to Course Credit. High School graduates are granted college credit in recognition of occupational competence.

The difference between Course Credit and Occupational Credential Acceptance is that in the latter case mastery of competencies is validated by an organization external to the school/college system. Since both Phoenix Union High School District Area Vocational Center and Maricopa Technical Community College offer nursing programs which prepare students for licensure, an ideal opportunity to articulate exists.

Last May, Phoenix Union High School District Area Vocational Center and Maricopa Technical Community College entered into an articulation agreement. Under this agreement, twenty-four first-year nursing credit hours could be awarded to persons who had completed the Practical Nursing program at Phoenix Union High School District Area Vocational Center, and passed the Arizona State Board of Nurses Examiners licensure examination for Practical Nurses. Credits would be posted on a transcript after admittance into the second year of the Associate Degree Nursing curriculum at Maricopa Technical Community College.

This year, the Practical Nursing articulation agreement was expanded to include all Maricopa Community Colleges. First-year nursing credits will now be granted to Phoenix Union High School District Area Vocational Center Licensed Practical Nursing alumni by Mesa Community College, Maricopa Technical Community College, Phoenix College, and Scottsdale Community College. First semester nursing credits will be granted by Glendale Community College. As soon as South Mountain Community College initiates a two-year nursing program, the agreement will apply there as well.

The major benefit of this type of articulation is that students will be able to pursue additional educational goals without having to repeat previously mastered competencies.

Resource Coordination

Resource Coordination is. . .

the sharing of faculty, facilities, and equipment.

Deer Valley Vocational Technical Center, the Peoria Unified District and Glendale Community College have an excellent Resource Coordination project in place.

The project's goal is to identify the ways high schools and colleges can share facilities, faculty, and equipment so as to increase educational opportunities without increasing cost.

Glendale Community College and Deer Valley Unified School District offer articulated classes in Diesel Engine Theory, Passenger Car and Light Truck Diesel, Welding, Machine Shop Theory, and Digital Concepts for both college and high school students at Deer Valley Vocational Technical Center. The courses are taught by Glendale Community College faculty.

There are significant benefits to this articulation agreement. Glendale Community College and Peoria Unified School District have not had to duplicate facilities that already exist at Deer Valley Vocational Technical Center. More importantly, students from Glendale Community College and the Peoria Unified District now can participate in programs neither institution offered eighteen months ago. Furthermore, Deer Valley Unified School District students and Peoria Unified School District students now earn college credit while enrolled at Deer Valley Vocational Technical Center.

Joint Program Development

Joint Program Development occurs. . .

when high school and college administrators cooperatively develop an occupational program.

Joint Program Development is being used to increase vocational education opportunities for Phoenix College and Phoenix Union High School District students.

One reason Joint Program Development is natural, between the institutions in question, is that the Phoenix Union High School District Area Vocational Center is being relocated to a site only four blocks from Phoenix College. They will soon be the closest pair of occupational education institutions in the county.

The articulation agreement that has evolved between the Phoenix College Food Service Administration Program and the Phoenix Union High School District Area Vocational Center Culinary Arts Program is an excellent example of how Joint Program Development can occur.

Phoenix College has, for a number of years, offered a program in Food Service Administration, but has had no laboratory in which to teach the Quantity Food Preparation courses such a program properly should include. The Phoenix College Cafeteria simply is not designed as an instructional facility. Phoenix Union High School District Area Vocational Center offers a program in Culinary Arts that will soon have one of the best equipped teaching kitchens in Arizona.

Phoenix Union High School District Area Vocational Center faculty and Phoenix College faculty began to develop a common curriculum last fall. They have designed a series of Food Preparation courses that will be prerequisite to the Phoenix College program. All laboratory work will be in the Phoenix Union High School District Area Vocational Center teaching kitchen throughout the first year of the Phoenix College program. It is anticipated fifteen to twenty Phoenix College students will enroll.

Phoenix Union High School District Area Vocational Center Culinary Arts students, who will have completed the same courses, will be awarded college credit for the Culinary Arts courses completed at the Phoenix Union High School District Area Vocational Center should they elect to continue their education and become a Food Service Administrator.

The result will be increased opportunities for a food service job, and career advancement, for students from both the Phoenix Union High School District and Phoenix College. Since both institutions will be using the same teaching kitchen only one will have to be built.

Regionalization

Regionalization is the most comprehensive form of articulation. This is. . .

> **the coordination of all public occupational education resources within a geographic area.**

Occupational education administrators in the Eastern portion of Maricopa County have been working towards this goal now for some time.

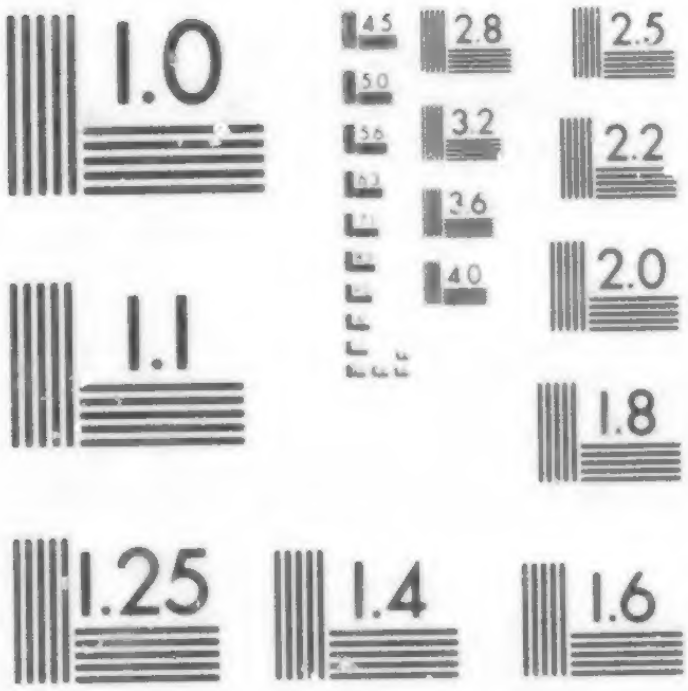
In 1981 occupational education administrators from the Mesa Public Schools and Mesa Community College began to visit programs at each institution to become familiar with the goals, objectives and operation of the overall occupational effort underway in their community. In addition, they recommended a staff member be included on each of the other institutions' advisory committees. Finally, in the Fall of 1984, under the leadership of Dr. Jim Zaharis, Superintendent, Mesa Public Schools and Dr. Wallace Simpson, President, Mesa Community College, progress began in earnest with a meeting of the superintendents, Arizona Department of Education and State Board of Directors for Community Colleges in Arizona representatives, occupational administrators, community leaders, and governing board members involved.

The mission agreed on was that. . .

> "our task is to provide vocational training to all (grades 11 and up) who desire training through use of facilities, staff, and equipment at Mesa Community College and Mesa Vo-Tech. Each entity wishes to accomplish this through the most efficient use of the facilities and staffs."

The larger plan is to make it possible for students from all eastern Maricopa County High Schools to attend the occupational programs at Mesa Vo-Tech and Mesa Community College. Towards this end the Mesa Public Schools are paying the salary of a half-time secretary, and Mesa Community College is paying the salary of a half-time articulation specialist, both of whom are housed at Mesa Community College.

As a pilot project Mesa Community College and the Mesa Public Schools have planned to articulate the following programs: Automotive & Heavy Equipment, Child Development, Drafting, Machine Shop, Office Education, and Ornamental Horticulture. The articulation procedures that develop will then be shared with high schools in eastern Maricopa County.



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Examples of articulation activities to date include Mesa Community College making its Machine Shop available, at no charge, to the Mesa Public Schools and other nearby high schools. Mesa Public Schools is providing the instructor and is paying for supplies. Nearby high schools, who want to send students to learn Machine Shop in the articulated classroom at Mesa Community College, will be asked to pay a pro-rata share of the instructor and supply costs.

High school students, who complete two semesters in the articulated Machine Shop course, may be able to enter Mesa Community College with most of their first semester college courses already completed.

Another example of how Regionalization will work involves Data Processing instruction. Because Mesa Vo-Tech and Mesa Community College offer similar Data Processing courses, students who complete selected Data Processing courses at Mesa Vo-Tech will receive Data Processing credit after they enroll at Mesa Community College. Adults over eighteen years of age, who attend these articulated courses during the day at Mesa Vo-Tech, will be able to do so as Mesa Community College students. The Mesa Vo-Tech instructor in charge will have both a secondary and post-secondary teaching certificate.

Regionalization also requires establishment of compatible schedules. For example, Mesa Vo-Tech will teach both high school students, and adults, in the same classrooms. During the day Mesa Vo-Tech will provide courses for:

Regional High Schools
Maricopa Technical Community College
Mesa Community College

During the evening Rio Salado Community College students, and adults enrolled in Mesa Public Schools Community Education courses, will attend courses at most Mesa Public Schools.

Regionalization will benefit students, employers, and taxpayers. Students will gain access to an increased variety of programs, will not have to repeat already mastered skills when they go on to college, and younger students will learn adult behavior from the adults in their classes. Taxpayers will save dollars through non-duplication of programs, facilities, equipment, and staff. Industry will receive skilled entry-level employees sooner and at less cost.

Able & Ambitious

Another example of articulation is represented by a long standing Maricopa Community Colleges program titled Able and Ambitious.

> **The Able and Ambitious Program makes it possible for young people to enroll in courses at any Maricopa Community College and earn regular college credit, while still a high school student.**

South Mountain Community College and South Mountain High School are using the Able and Ambitious Program to develop programs and activities that make it possible for high school students to become involved in a community college credit atmosphere while still in high school. The goal is to encourage students to continue their education through high school graduation and beyond.

One of the most significant problems facing many students in the South Mountain community is they may question their ability to succeed in high school and college and receive little encouragement from their peers. Further, as first generation college students, many do not understand the educational options a college offers, or how to access the support systems that are available. One way to overcome these problems is to have young people co-enroll in college courses prior to graduation from high school.

As a first step administrators and faculty from South Mountain Community College invited Business and Cooperative Office Education students from Carl Hayden and South Mountain High Schools to a special orientation program on office automation careers at South Mountain Community College.

Second, faculty from South Mountain High School and South Mountain Community College are working together to produce an articulated business and office education program to ensure that high school students do not have to duplicate coursework when they go on to college after graduation.

Finally, beginning next fall, South Mountain High School students will complete Word and Data Processing courses in the learning laboratories at South Mountain Community College. These courses will focus on basic theory and skill development. The high school students involved will earn college credit for successful completion of these courses.

South Mountain High School students who successfully complete college level courses on the South Mountain Community College campus will have lost their fear of college. This should help to encourage them to graduate from high school. Furthermore, having college courses completed that will apply towards a degree, should be an incentive to go on to college.

Barriers

The benefits of articulation are so obvious that articulation is very easy to talk about. Being against articulation is like being opposed to apple pie and motherhood. Why then, is articulation more the exception than the rule? Why was it necessary for the Arizona legislature to mandate that college and high school occupational programs be articulated?

Articulation has not occurred because articulation **is extremely difficult to accomplish.** It has been said the difficulty of doing anything increases in a geometric proportion to the number of educational institutions involved and experience seems to bear this out. It is a lot more difficult to develop and run an articulated program than it is to offer the same program to one's own student on one's own campus.

Some of the barriers to articulation can be overcome by teachers and administrators, some barriers can be overcome by cooperation between the State Board of Directors for Community Colleges of Arizona and Arizona Board of Education, and some barriers can only be overcome through changes in the laws that govern Arizona public education.

Turfmanship is a problem. Teachers and administrators work for years to build a reputation for excellence. They are reluctant to give up control of their programs. They do not want to see reputations they have taken years to establish tarnished by incompetent graduates.

Curriculum is not always compatible. For articulation to occur, what is to be taught, when it is to be taught, and the degree of skill to be expected of each graduate, in all involved courses, has to be coordinated - and then curriculum developed to make articulation possible. This is a significant barrier.

It takes teachers years to write and perfect a curriculum that consistently produces competent graduates. There usually is no money available to pay teachers to revise their curriculum. They are expected to do so on their own. Teachers are understandably hesitant to undertake the curriculum revision necessary to facilitate articulation, until they have sound reasons to begin and substantial trust in their counterparts from the articulating institution.

Administrators are helping to overcome turfmanship and curriculum barriers by making it possible for their teachers to meet and work with their counterparts from other institutions. Most teachers are willing to revise their curriculum once they see how doing so will benefit students, and after they have learned to trust the teachers with whom they are being asked to articulate.

Scheduling is a problem. High schools have an eighteen week semester while colleges meet for sixteen weeks. Vacations tend to be scheduled at different times, too. Scheduling problems can be minimized by cooperation between administrators of the articulating institutions

Teacher certification requirements are also a problem. Most college teachers must have a Masters Degree in the subject they teach to obtain a College Teaching Certificate while high school teachers do not have this requirement. On the other hand, a secondary teaching certificate is very difficult to obtain. Few college teachers are eligible for a high school teaching certificate without completing several additional university courses.

Teacher certification requirements are beyond the control of local governing boards. It will take cooperation between the State Board of Directors for Community Colleges in Arizona and the Arizona Board of Education to eliminate this barrier.

High school and college attendance requirements are different and this causes complications. High schools have to account for every students' whereabouts every day. While skipping college classes is not smart, attendance is legally optional. Accounting for attendance becomes extremely complicated when high school and college students share the same class.

In addition, **high schools and colleges are funded differently.** Colleges receive a certain dollar amount per Full-Time Student Equivalents (FTSE). High schools receive funds in terms of Average Daily Membership (ADM) which is one reason high schools have to monitor attendance so carefully.

Maintenance of property and equipment can be a problem. Who pays for normal maintenance and breakage, when property and equipment are owned by one institution? It may be possible to specify responsibility for maintenance of facilities and equipment in intergovernmental agreements that are negotiated between cooperating institutions.

Joint use of supplies is illegal. Supplies can only be used to teach the students for whom they are targeted.

In addition, **transportation** of students from their home school to where an articulated occupational program exists **is expensive** in terms of increased cost, time loss, and liability.

Closing

A lot of progress has occurred. Appendix one lists the articulation agreements currently operational in Maricopa County. Several more are being planned. The local approach to articulation, whereby Vocational Directors and Occupational Deans are free to negotiate articulation agreements that meet the unique needs of their communities, has worked well.

Articulation is easy to talk about. The concept is easy to understand and articulation has the potential to benefit everyone - especially students. That is why teachers have contributed the time and energy it takes to make articulation a reality.

That is why administrators support the concept of articulation and are willing to devote the time and energy necessary to overcome barriers as they arise.

Administrators and faculty from the Maricopa Community Colleges will continue to work with their counterparts from the high schools that send them students to develop articulation agreements that meet the unique needs of each community. As barriers arise everyone will work together to clarify them, to obtain legal opinions and decisions as to how they can be overcome, and to then move on together.

Appendix A

HIGH SCHOOL - COLLEGE ARTICULATION PROJECTS CURRENTLY IN PROGRESS

Glendale Community College

Deer Valley Unified School District: Agriculture, Business, CAD/CAM, Diesel Mechanics, Electronics, Graphic Art, Machine Trades, Nursing, Photography, Welding

Phoenix Union High School District: Nursing

Maricopa Skill Center

Phoenix Union High School District: Bostrom Alternative Vocational Training for High Risk Students Project, Desirata, Vocational Skills for High School Dropouts Project

Tempe Union High School District: Electronic Fabrication, Machine Trades, Meat Cutting, Welding

Maricopa Technical Community College

Mesa Public Schools: Advertising Art, Allied Health, Heating Ventilation & Air Conditioning, Nursing Assistant, Welding

Paradise Valley Unified School District: Advertising Art, Allied Health, Welding

Phoenix Union High School District: Allied Health, Drafting, Nursing, Practical Nursing, Welding

Scottsdale Unified School District: Advertising Art, Allied Health, Data Processing, Drafting, Nursing Assistant, Welding

Mesa Community College

Mesa Public Schools: Agriculture, Child Development, Drafting, Machine Shop, Office Education, Word Processing

Phoenix Union High School District: Nursing

Scottsdale Unified School District: Child Care

Tempe Union High School District: Office Education, Word Processing

Phoenix College

Deer Valley Unified District: Electronics

Peoria Unified School District: Electronics

Phoenix Union High School District: Clinical Laboratory Technician, Drafting, Food Service Administration, Interpreter for the Deaf, Medical Technology, Nursing, Para-Dental

Scottsdale Community College

Phoenix Union High School District: Nursing

Scottsdale Unified School District: Culinary Art, Data Processing, Electronics, Nursing, Office Education, TV Production

South Mountain Community College

Phoenix Union High School District: Criminal Justice, Data Processing, Secretarial Science, Word Processing

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